

ZOOLOGY.—*A new harpacticoid copepod from North Carolina.*

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Harpacticoid copepods collected by a graduate student, Paul McKee, from Baker Lake (Bladen County), Swamp Pond (Craven County), Odum's Millpond (Cumberland County), and other waters of eastern and southeastern North Carolina were found to resemble in many respects both *Canthocamptus staphylinoides* Pearse (1905) and the subspecies that the senior author has described as *sinuus* (1934). There are, however, such notable points of difference from one or both of these forms that it merits at least subspecific designation. We have named it:

*Canthocamptus staphylinoides vagus*, new subspecies

*Holotype*.—Female from Swamp Pond, Craven County, N. C., U.S.N.M. no. 79249. Collected by Paul McKee, January 16, 1938. Males have not been found. (McKee and Coker, 1940.)

*Diagnosis*.—Second foot conforming to the type; vestigial seta of fifth foot rather long—about one-sixth the length of outermost seta; relative lengths of spines on that segment about as in *C. staphylinoides*; anal spines small, 10 to 12 in number; many small spinules just lateral to the straight mesial borders of furcal rami on ventral side. (Now known only from waters of the lower Coastal Plain in North Carolina.)

*Description*.—Second foot: The endopod has only one seta on the inner border of the third segment (Fig. 1, *c*) where *sinuus* has two (Fig. 1, *j*); apparently it is the distal seta that is lacking. Pearse did not describe or figure this foot, but copepods we have from Massachusetts seem to agree in every other particular with the description of *C. staphylinoides* and are found to have only one seta in the place mentioned.

Fifth foot: Examples from Baker Lake have a distal joint of the fifth foot virtually identical with that of *C. sinuus*, but the short seta between the bases of the outermost setae of the proximal segment is distinctly longer than the corresponding seta of *sinuus* or of *staphylinoides* from Massachusetts (compare Figs. 1, *e*, and 1, *a*, with Figs. 1, *k*, and 1, *g*). The third well-developed seta, counting from the outer border of this segment, is distinctly shorter than the fourth, whereas in *C. sinuus* (Fig. 1, *k*) the two are approximately equal; in this respect the copepods in question are like *C. staphylinoides* (Fig. 1, *g*). The copepods from Swamp Pond (Fig. 1, *a*) have all spines, except perhaps the two outermost setae and the innermost seta of the distal joint, decidedly shorter, blunter, and stronger. The short seta of the proximal segment is intermediate between that of Baker Lake and *C. sinuus*, but its length, relative to that of the longest spine, conforms roughly with the corresponding relation in the Baker Lake copepods. This is true also of the third well-developed spine.

Caudal furca: The form of the furca (Figs. 1, *b*, *f*) is quite unlike that characteristic of *C. sinuus* (Fig. 1, *i*) but like that of *C. staphylinoides* (Figs. 1, *l*, *h*). On each branch of the furca there is a submarginal row of fine spinules or setae on the ventral surface a little lateral to the inner margin (Figs. 1, *b*, *f*); these spinules are not well seen until the furca is turned at an angle,

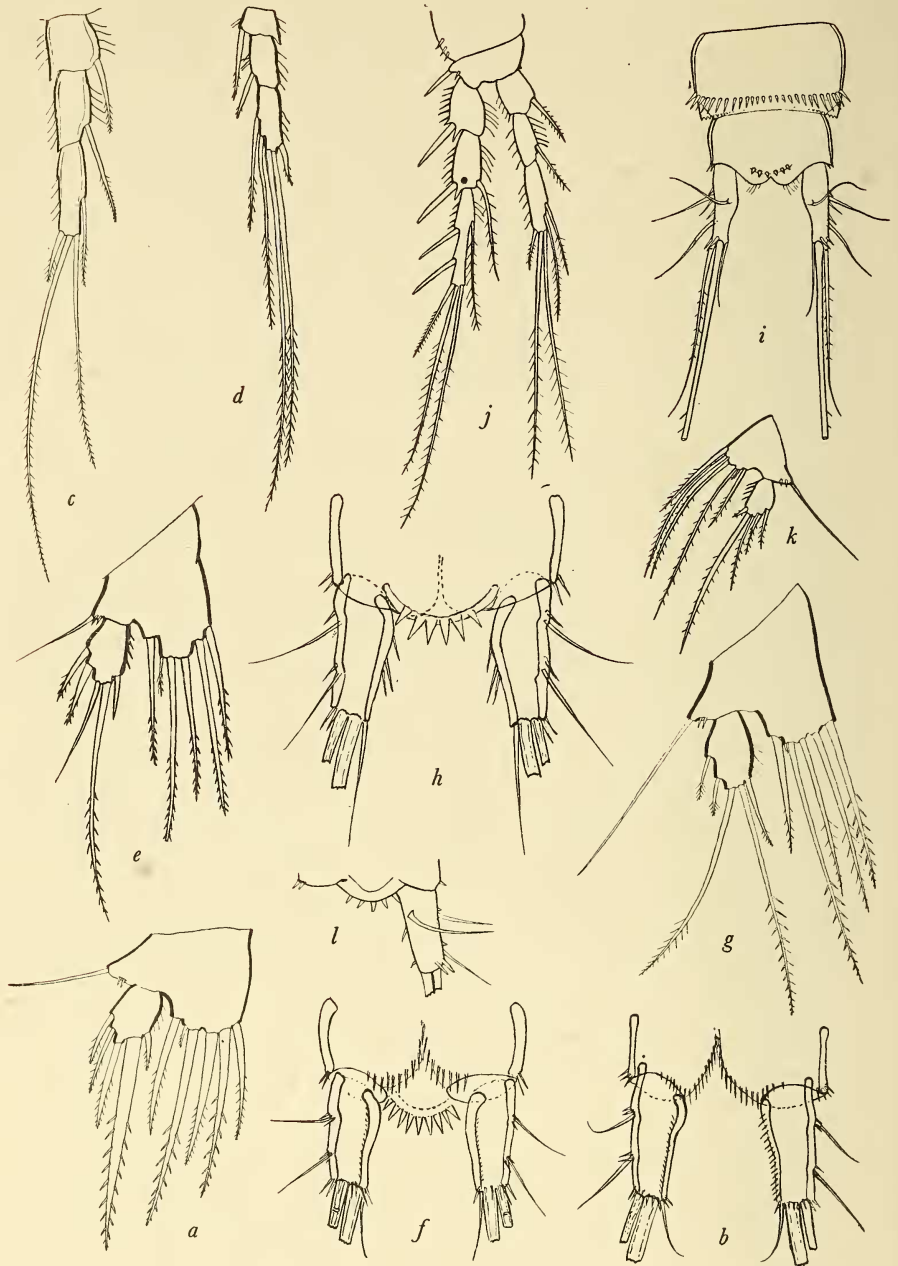


Fig. 1.—*Canthocamptus staphylinoides vagus*, holotype, female, from Swamp Pond: a, Fifth foot; b, furca—ventral aspect, slightly turned. *Canthocamptus staphylinoides vagus* from Baker Lake: c, Endopod of second foot, female; d, endopod of third foot, female; e, fifth foot; f, furca. *Canthocamptus staphylinoides* (s. str.) from Massachusetts: g, Fifth foot; h, furca—dorsal. *Canthocamptus staphylinoides* (after Pearse, 1905): i, Furca. *Canthocamptus sinuus* (from Coker, 1934): j, Second foot, female; k, Fifth foot; l, furca.

as shown in Fig. 1, *b*. The furca of the Massachusetts copepod (Fig. 1, *l*) seems to be typical of *C. staphylinoides* as described and illustrated by Pearse (Fig. 1, *h*), with a few rather strong setae showing on the inner margin or ventrally.

Anal plate: The spinules of the anal plate (Figs. 1, *b*, *f*) are relatively small, there being 10 on the examples from Baker Lake, 12 on those from Swamp Pond. The number in *C. sinuus* (Fig. 1, *i*) and *C. staphylinoides* (Fig. 1, *h*) is about 6, and the spinules are distinctly stouter.

The differences between the copepods from Baker Lake and those from Swamp Pond are insignificant. In respect to the fifth foot, the differences between these copepods on the one hand and either *C. staphylinoides* or *C. sinuus* are also inconsiderable.

*Remarks.*—Comparison of the new copepod with the previously described forms is given in the following table, where the mark "X" is used when the character is common to two, and the mark "—" where a distinctive character is found.

Species	Second foot	Rudi-mentary seta	Fifth <sup>1</sup> foot	Anal spines	Furca form	Arma-ture
<i>C. staphylinoides</i> .....	X	X	X	X	X	—
<i>C. s. vagus</i> n. subsp.....	X	—	X	—	X	—
<i>C. sinuus</i> .....	—	X	—	X	—	—

<sup>1</sup> Relative lengths of seta on first segment.

Since *C. sinuus* may now be presumed to differ from *C. staphylinoides*, not only in the form and armature of the furca, but also, and significantly, in the armature of the second foot, it should be regarded as a distinct species. The furca is unmistakable at a glance.

For direct comparison with the foregoing diagnosis of *C. s. vagus* we present here diagnoses of *C. staphylinoides* Pearse and *C. sinuus* Coker (here raised to the status of a species; described by Coker, 1934), the only other members of the restricted genus *Canthocamptus*, as defined by Chappuis and followed by the senior author in *Contribution to knowledge of North American freshwater harpacticoid copepod Crustacea*, 1934, now known to occur in the United States.

*C. staphylinoides* Pearse: Characters of the genus (both rami of second to fourth swimming feet 3-jointed, a vestigial seta on mesial expansion of fifth foot, etc.); second foot with one seta on inner border of third segment of endopod; short seta between bases of two outermost setae of proximal segment of P5 very short—about one-twelfth as long as the adjacent outermost seta or shorter; third well-developed seta of that segment, counting from the outermost border, shorter than fourth; anal spines large, 6 to 8 in number; a few prominent spinules on the straight mesial side of each furcal rami. (Now known only from Northern United States and Canada.)

*C. sinuus* Coker: Second foot with two setae on inner border of third segment of endopod; vestigial seta of P5 about as in *C. staphylinoides*; third well-developed seta on that segment about equal to fourth; anal spines 6 to 8 in number; mesial profile of furcal rami *sinuous* and *unarmed*. (Known from Connecticut, New Jersey, and North Carolina.)



Our new copepod is nearer to *C. staphylinoides* than to *C. sinuus* in the second foot, the fifth foot, and both the form and armature of the furca, although it differs from the former in the rudimentary seta of the fifth foot, the anal spines, and the armature of the furca. Since, however, the differences between our copepod and *C. staphylinoides* are quantitative and may be presumed to be subject to considerable variation, I would propose only a new subspecific name *vagus*, referring to its apparent habit of wandering out into open water. Harpacticoid copepods are characteristically littoral in the extreme and it is worthy of note that this copepod was taken repeatedly in plankton hauls during a survey covering 45 waters. The only other harpacticoid encountered was *C. sinuus* in one collection from a shallow swamp lake.

Some of the older lists of American harpacticoid copepods include *C. staphylinus* Jurine, but it is very probable that the records of the European species, which is clearly distinguishable by the conspicuous blunt, spinelike projection on the posterolateral margins of the fifth abdominal segment, as well as by other characters, are attributable to errors in identification. We know of one such case.

#### LITERATURE CITED

- COKER, R. E. *Contribution to knowledge of North American freshwater harpacticoid copepod Crustacea.* Journ. Elisha Mitchell Sci. Soc. 50: 75-141, 15 pls. 1934.  
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## PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES PHILOSOPHICAL SOCIETY

### 1155TH MEETING

The 1155th meeting was held in the Cosmos Club Auditorium, Saturday, October 14, 1939, President BRICKWEDDE presiding.

*Program:* T. F. W. BARTH, Geophysical Laboratory: *Geysers and other hot springs in Iceland.*—The thermal activity in Iceland, which is but one phase of the recent volcanicity, is not equaled in intensity or extent by any other region. Pioneers of our modern science, men like Bunsen, Descloizeaux, and others, visited Iceland to study these phenomena, and through their work the local name of the most famous spouting fountain in Iceland at that time, viz., "Geysir" (meaning "spouter") was accepted as a general term for hot springs of this type.

The acid springs are intimately associated with recent volcanic activity, the alkaline springs are more independent in this respect, but are clearly most plentiful in areas possessing a superior water supply. Both acid and alkaline springs may show geyser action. Some of the geysers form deep wells, but measurements show that, although the temperature increases with depth, the boiling point is not reached at any depth—this is also true for the Great Geysir, which is 27 m deep.